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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/216,855	12/21/1998	KATSUNORI HIRASE	P7314-8009	9061

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EXAMINER

WONG, ALLEN C

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 07/21/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/216,855

Applicant(s)

HIRASE ET AL.

Examiner

Allen Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed --
- after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/7/04 have been fully read and considered but they are not persuasive.

For clarification's sake, claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Kim (6,104,753), and claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (6,104,753).

Regarding lines 9-13 on page 20 of applicant's remarks about claim 1, applicant states that Kim does not disclose the motion picture decoding apparatus, a coefficient reducing circuit, which removes orthogonal transform coefficients for high horizontal frequencies from certain sized block of orthogonal transform coefficients, thereby reducing the number of transform coefficients to half, provided in the downstream side of the inverse quantizer. The examiner respectfully disagrees. The examiner has broadly interpreted the claim limitation as written in that Kim's fig.19, element 54 and col.13, ln.60-63 disclose the 8x8 DCT orthogonal transform coefficients are received at VLD 53 and then these 8x8 DCT orthogonal transform coefficients are reduced to half by the 8x4 high frequency horizontal filter 54 by removing the high horizontal frequencies from the 8x8 blocks of orthogonal transform coefficients, thus producing the 8x4 DCT transform coefficients. Further, in lines 18-20, the applicant states that in the present invention, it is not necessary to change the operation of the inverse quantizer between HDTV video and SDTV video. In response to the applicant's statement, claim 1 is broadly rejected because of the way the claim language describes the present

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invention, and nowhere does claim 1 specifically state that the present invention does not need to change the operation of the inverse quantizer between HDTV video and SDTV video. Thus, the rejection is maintained.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Kim (6,104,753).

Regarding claim 1, Kim discloses a motion picture decoding apparatus comprising:

a variable length decoder for decoding an inputted variable length coded transform coefficient (fig.19, element 53);

an inverse quantizer for inversely quantizing the transform coefficient supplied by the variable length decoder, thereby transforming the coefficient back to an orthogonal transform coefficient (fig.19, element 55);

a coefficient reducing circuit for transforming the orthogonal transform coefficient obtained by the inverse quantizer back to a certain sized block of orthogonal transform coefficients and removing orthogonal transform coefficients for high horizontal frequencies from a certain sized block of orthogonal transform coefficients obtained from an input signal, thereby reducing the number of transform coefficients to half (fig.19, element 54 and col.13, ln.60-63; note the 8x8 DCT orthogonal transform coefficients are received at VLD 53 and then these 8x8 DCT orthogonal transform coefficients are reduced to half by the 8x4 high frequency horizontal filter 54 by removing the high horizontal frequencies from the 8x8 blocks of orthogonal transform coefficients, thus producing the 8x4 DCT transform coefficients);

an inverse orthogonal transformation circuit for performing an inverse orthogonal transform operation by using the transform coefficients reduced by the coefficient reducing circuit, thereby obtaining, on a block-by-block basis, reconstructed image data or time-axis prediction error data horizontally compressed to $\frac{1}{2}$ (col.13, ln.65-67; fig.19, element 56 is an inverse orthogonal transformation circuit that uses the 8x4 DCT transform coefficients and inversely transform these 8x4 DCT transform coefficients, block-by-block basis, to reconstructed image data or time axis prediction error data);

an adder for generating reconstructed image data horizontally compressed to $\frac{1}{2}$, based on the time-axis prediction error data provided by the inverse orthogonal

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transformation circuit and on predetermined reference image data (see fig.19 and col.14, ln.11-13, note the adder 58 is used for generating reconstructed image data, as previously horizontally compressed to $\frac{1}{2}$ by element 54 and inversed orthogonal transformed by IDCT 56); and

one or more than one reference image memories for storing reconstructed image data which is included in the reconstructed image data provided by the inverse orthogonal transformation circuit or the adder and is needed for generating the reference image data (fig.19, element 59 and col.14, ln.14-17; after the reconstructed image data has exited the adder 58, the image memory 59 stores the reconstructed image data, where the I, P and B picture types are classified and stored in preparation for retrieval and display).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (6,104,753).

Regarding claims 2-3, in the background of Kim, Kim discloses the use of the equations $F(u,v)$ and $f(i,j)$ of the inverse orthogonal transformation wherein the limits or values for the summation Σ are set from 0 to 7 for an 8x8 inverse DCT orthogonal

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operation, and, the limits or values (i , u and j , v , where u is the horizontal frequency and v is the vertical frequency) for the summation Σ are set from 0 to 3 for an 4x4 inverse DCT orthogonal operation, respectively (column 3, lines 5-20). Kim fails to specifically teach, in the equation $f(i,j)$, the limits or values of the summation Σ where the values for u , horizontal frequency, where i , $u = 0, 1, 2, (M/2 - 1)$ for claim 2, and i , $u = 0, 1, 2, 3$, for claim 3.

However, Kim teaches the use of 8 (vertical) x4 (horizontal) IDCT (inverse discrete cosine transform) element 56 in figure 19 for inversely discrete cosine transform 8 (vertical) x4 (horizontal) block. Therefore, it would have been obvious to one of ordinary skill in the art to variate Kim's element 56 of fig.19 to conform the dimensions of the 8 (vertical) x4 (horizontal) block into the equation as shown in Kim's background information (col.3, ln.5-20) to its appropriate limits for evaluating the inverse orthogonal transform or the inverse discrete cosine transform of the 8 (vertical) x4 (horizontal) block so as to reduce errors during the reconstruction and decoding of image data. Moreover, it does not appear to be critical that coefficients are to be of greater accuracy in the vertical or horizontal direction simply because this inverse orthogonal transform operation is based on picture size and orientation.

Regarding claim 4, Kim discloses a motion picture decoding apparatus further comprising a motion compensation circuit for performing a motion compensation operation on image data of a certain size (col.15, ln.66 to col.16, ln.10; Lee's fig.19, element 61 is the motion compensation circuit that can perform a motion compensation operation with a horizontal accuracy of $\frac{1}{4}$ pel and a vertical accuracy of $\frac{1}{4}$ pel; also,

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col.3, ln.37-50; Kim discloses, for 4x4 region on 8x8 blocks, using half pel resolution motion compensation in horizontal and vertical directions, and quarter pel resolution motion compensation in horizontal and vertical directions) and the image data read from the reference image memory for generation of the reference image data and horizontally compressed to $\frac{1}{2}$ relative to an original picture (fig.19, note the image data can be read from image memory 59 that stores the reference image data that has already been horizontally compressed to $\frac{1}{2}$ relative to an original picture). Kim does not specifically disclose motion compensation operation on image data of a certain size with a horizontal accuracy of $\frac{1}{4}$ pel (pixel) and a vertical accuracy of $\frac{1}{2}$ pel (pixel). In other words, Kim fails to teach the use of motion compensating an 8 (vertical) x4 (horizontal) block.

However, Kim teaches the use of 8 (vertical) x4 (horizontal) IDCT (inverse discrete cosine transform) element 56 in figure 19 for inversely discrete cosine transform 8 (vertical) x4 (horizontal) block. Therefore, it would have been obvious to one of ordinary skill in the art to variate Kim's element 56 of fig.19 to conform the dimensions of the 8 (vertical) x4 (horizontal) block into the equation as shown in Kim's background information (col.3, ln.5-20) to its appropriate limits for evaluating the inverse orthogonal transform or the inverse discrete cosine transform of the 8 (vertical) x4 (horizontal) block so as to reduce errors during the reconstruction and decoding of image data. Moreover, it does not appear to be critical that coefficients are to be of greater accuracy in the vertical or horizontal direction simply because this inverse orthogonal transform operation is based on picture size and orientation.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-5978. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allen Wong
Examiner
Art Unit 2613

AW
7/15/04


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